

Cradle Transport Equipment System (Push-Pull Skid System)

Operational Functions & Particulars

The Cradle Transport Equipment System (CTE System), also called the Push-Pull Skid System, is used for moving the large concrete shells from the precast yard located on the Illinois side of the Ohio River, down to the Catamaran Barge located in the river itself. When in use, the CTE System will be attached to a transportation cradle that will support the concrete shells, and other loads, being moved up and down the marine skid way rails. The CTE System uses hydraulic cylinders to propel itself and its load up or down the marine skid way by pushing or pulling against notches cut into the upper flanges of the rails, while the cradle itself is guided by a 2-inch high by 10-inch wide track plate mounted to the top of these rails.

When transporting the loaded or unloaded cradle on the upper part of the skid way (in-the-dry) the CTE will be attached directly to the cradle. Whenever the cradle is to be lowered into the river, it will be locked in position on the skid way at a point just prior to being fully submerged and disconnected from the CTE. The CTE will then be moved up the skid way so that 500-foot long pendant extensions can be installed between the CTE and the cradle. The pendant extensions will ensure that no hydraulic or electrical components of the CTE become submerged while the cradle is being spotted on the skid way for loading or unloading by the catamaran barge or other marine equipment.



Facts & Figures

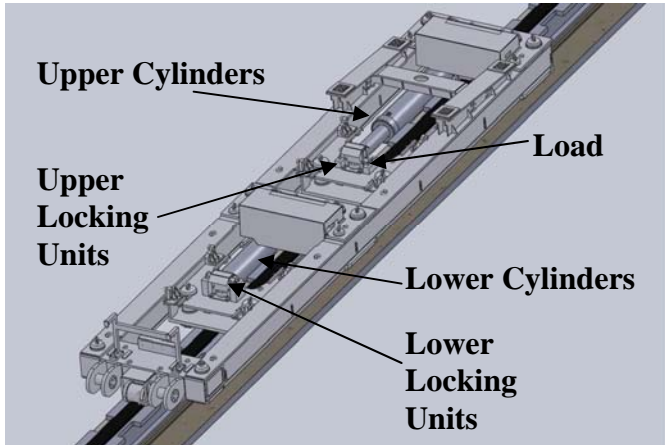
- **Cost:** \$4 million (for Cradle Transport Equipment only. This does not include cost of onsite assembly.)
- **Major Components:** A frame mounted HPU, Control Room, and two (2) skidding systems.
- **Power Source:** Electric over hydraulics.
- **Drive Motors:** Hydraulic.
- **Travel Speed:** Average speed is 64' per hour, with an emergency speed of 127' per hour.
- **Designer/Vendor:** Bigge Crane & Rigging/Hydrospex.

- **Marine Skid way:** The marine skid way is built on a slope of 1 vertical: 12 horizontal; the center-to-center spacing of the skid way rails is 75-feet.

Transportation Cradle Facts & Figures

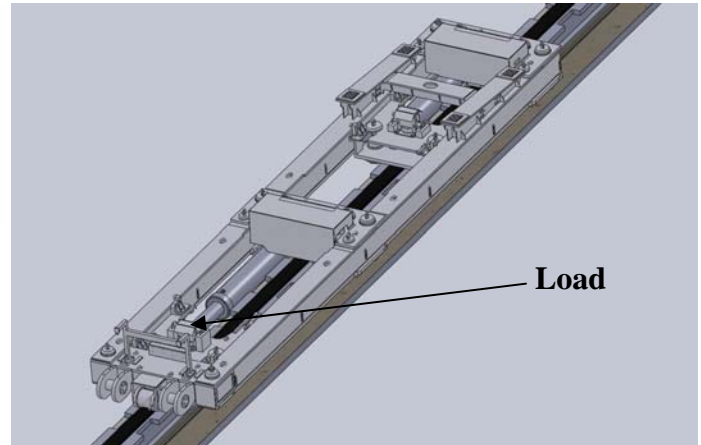
The approximate overall dimensions of the cradle are 85-feet wide by 132-feet long. It is supported on the marine skid way rail by 13-bogie assemblies on each side. Each bogie assembly consists of 4 double-flanged steel wheels. The total weight of the unloaded cradle (structural frame and bogie assemblies included) is approximately 580 tons. Cost: \$3.9 million (for Cradle and Boogie Wheels. This does not include cost of onsite assembly.) The Cradle and Boogie Wheels were designed and supplied by Hillsdale Fabricators (a subsidiary of Alberici).

CTE System Downhill Cycle



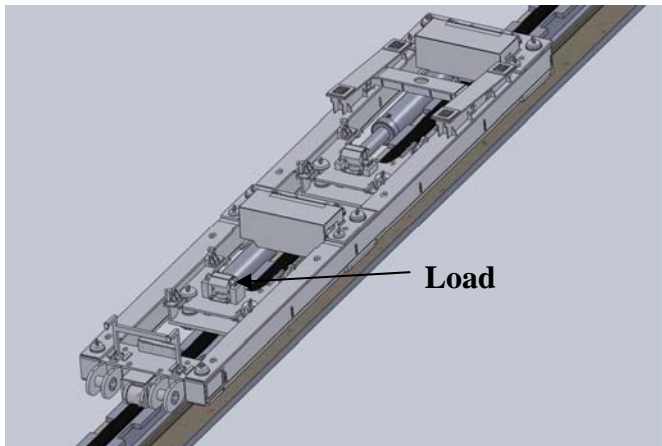
Starting Position:

- With Upper Locking Unit engaged into Rail.
- Upper Cylinders are extended.
- Lower Cylinders are retracted.
- Lower Locking Units disengage Rail.



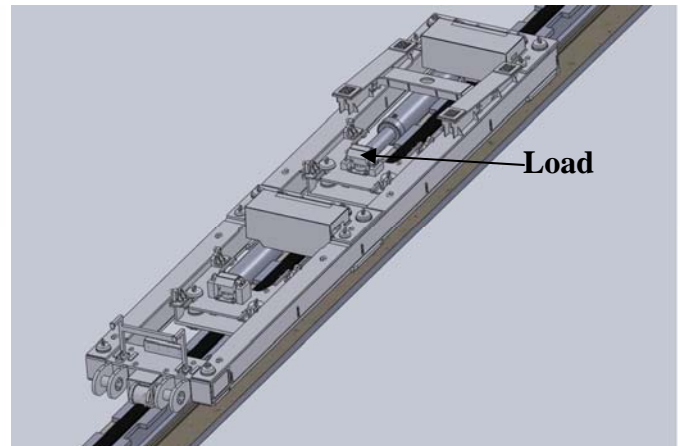
Step 1:

- Upper Cylinders retract with load.
- Lower Cylinders extend without load.
- Upon Completion of Cylinder Stroke, Lower Locking Units engage Rail.



Step 2:

- Upper Locking Units disengage Rail.
- Upper Cylinders extend without Load.
- Lower Cylinders retract with load.
- Upon Completion of Cylinder Stroke, Upper Locking Units engage Rail.



Step 3:

- Lower Locking Units disengage Rail.

Repeat process: Step 1-3

Corps of Engineers, Olmsted Resident Office
567 New Dam Road
Olmsted, Illinois 62970
502-315-7210

Washington Group / Alberici JV
675 New Dam Road
Olmsted, Illinois 62970
502-315-7300